

WHAT IS CLAIMED:Sub
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1. In a radio communications system including a core network coupled to a radio access network (RAN) and a plurality of mobile terminals, a method comprising:

5 establishing a connection between the core network and one of a plurality of mobile terminals through the radio access network;

associating a temporary RAN identifier with the mobile terminal for the connection; and

10 using the temporary RAN identifier to assist in the transfer of information through the radio access network relating to the connection.

2. The method in claim 1, wherein the temporary RAN identifier is used
B2 to route information between one or more entities in the RAN involved in the connection.

3. The method in claim 1, wherein the connection is a packet-based
15 connection and the temporary RAN identifier is included in each connection packet, the method further comprising:

routing connection packets through the RAN using the temporary RAN identifier incorporated in each connection packet.

4. The method in claim 1, wherein the radio access network includes a
20 first node associated with a first geographical coverage area and a second node associated with a second geographical coverage area, the method further comprising:
using the temporary RAN identifier in those packets corresponding to the connection to direct those packets to the first node.

5. The method in claim 4, wherein the mobile terminal moving from the
25 first coverage area to the second coverage area re-establishes the connection using the temporary RAN identifier.

B2 6. The method in claim 5, wherein the temporary RAN identifier includes a node identifier corresponding to the node through which the connection was initially established and a mobile terminal identifier.

5 7. The method in claim 6, wherein the node identifier corresponding to the node through which the connection was initially established and the mobile terminal identifier are employed when making initial contact in a new geographical coverage area.

8. The method in claim 7, wherein only the mobile terminal identifier is employed after making initial contact in the new geographical coverage area.

10 9. The method in claim 4, wherein the temporary RAN identifier includes a node identifier corresponding to the node through which the connection was initially established and a mobile terminal identifier, the method further comprising:

15 routing packets associated with the connection between the first and second nodes using a shortened temporary RAN identifier that lacks the node identifier.

10. The method in claim 4, wherein the first node is an initial RAN node that controls the connection from the perspective of the core network and the second node is another RAN node that currently serves the mobile terminal.

20 11. The method in claim 1, further comprising:
discontinuing use of the temporary RAN identifier when the established connection is terminated.

12. The method in claim 1, wherein the established connection is a packet-based connection, the method further comprising:

25 discontinuing use of the temporary RAN identifier when the established connection is allocated a dedicated radio channel.

13. In a radio communications system including a core network coupled to a radio access network (RAN) and a plurality of mobile terminals where a connection between the core network and one of a plurality of mobile terminals located in a first geographical area may be established through the radio access network, a method comprising:

associating a first RAN identifier with the one mobile terminal for the connection to be established;

using the first RAN identifier to assist in handling the connection in the radio access network when the one mobile terminal initially communicates with the radio access network from a second geographical area; and

using a second RAN identifier to assist in handling the connection in the radio access network after the initial communication by the one mobile terminal from the second geographical area.

14. The method in claim 13, wherein the first and second RAN identifiers are temporary.

15. The method in claim 13, wherein the first RAN identifier is longer than the second RAN identifier.

16. The method in claim 13, wherein the first RAN identifier includes a node identifier corresponding to a RAN node through which the connection was initially established and a mobile terminal identifier.

17. The method in claim 16, wherein the second RAN identifier includes the mobile terminal identifier but not the node identifier.

18. The method in claim 13, wherein the radio access network includes plural RAN nodes and one of the RAN nodes determines a RAN node address using one of the first and second RAN identifiers.

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19. In a radio communications system including a core network coupled to a radio access network (RAN) including a first Radio Network Controller (RNC) associated with a first area and a second Radio Network Controller (RNC) associated with a second area and a plurality of mobile terminals, where a connection may be established between the core network and one of a plurality of mobile terminals located in the first area through the radio access network using the first RNC, a method comprising:

the first RNC associating a temporary RAN identifier with the one mobile terminal for the connection; and

when the mobile terminal re-establishes the connection with the second RNC, the first RNC communicates information associated with the connection with the second RNC using the temporary RAN identifier.

20. The method in claim 19, wherein the temporary RAN identifier includes an RNC identifier corresponding to the first RNC through which the connection was initially established and a mobile terminal identifier.

21. The method in claim 19, wherein the temporary RNC identifier includes a RAN address of the first RNC.

22. The method in claim 19, further comprising:
determining an address of the first RNC using the temporary RNC identifier.

23. The method in claim 19, further comprising:
including additional RAN information in a message to the second RNC.

24. The method in claim 23, wherein the additional information includes area information that permits the first RNC to route a message for the mobile terminal to the RNC controlling the area that the mobile terminal is currently located.

25. The method in claim 23, wherein the additional information includes radio condition information.

B2 26. The method in claim 19, wherein the temporary RAN identifier includes a first RNC ID and a first mobile terminal ID associated with the first RNC.

27. The method in claim 26, wherein after the connection is established with the first RNC, control or user data are sent between the mobile terminal and the first RNC using only the first mobile terminal ID.

28. The method in claim 19, further comprising:
analyzing at the second RNC a packet corresponding to the connection including the temporary RAN identifier included in the packet;
determining at the second RNC from the temporary RAN identifier that the packet is to be routed to the first RNC; and
routing the packet to the first RNC.

29. The method in claim 19, further comprising:
determining a RAN address of the first RNC using the temporary RAN identifier; and
using the determined RAN address of the first RNC in a subsequent message to be routed from the second RNC to the first RNC.

30. The method in claim 28, wherein the second RNC assigns a second mobile terminal ID to the mobile terminal, the method further comprising:
sending control or user data between the mobile terminal and the second RNC using only the second mobile terminal ID.

31. The method in claim 19, when the connection is terminated, using the temporary RAN identifier in association with another.

32. The method in claim 19, further comprising:

the first RNC determining ~~another~~ RAN identifier corresponding to the

32 second RNC; and

the first RNC using the other RAN identifier to route a message associated
5 with the connection to the second RNC.

33. The method in claim 32, further comprising:

assigning a second mobile terminal ID to the mobile terminal for this
connection; and

employing the second mobile terminal ID to direct control or user data
10 between the mobile terminal and the second RNC.

34. In a radio communications system including a core network coupled to
a radio access network (RAN) and a plurality of mobile terminals, a RAN node
comprising:

a memory having at least one region for storing computer executable program
15 code; and

a processor for executing the program code stored in the memory, ✓
wherein the program code includes code responsive to a request to
communicate with or by one of the mobile terminals to establish a connection
between the core network and the one mobile terminal through the radio access
20 network and to associate a temporary RAN identifier for the connection; and code
responsive to a message from the core network that uses the temporary RAN
identifier to assist in a transfer of information in the radio access network.

35. The RAN node in claim 34, wherein the code is responsive to a page
message from the core network to use the temporary RAN identifier to assist in a
25 page of the mobile terminal.

36. The RAN node in claim 34, wherein the code is responsive to a cell update message from the mobile terminal including the temporary RAN identifier to assist in a cell update operation relating to the mobile terminal.

37. The RAN node in claim 34, wherein the code is responsive to a registration area update message from the mobile terminal including the temporary RAN identifier to assist in a registration area update operation relating to the mobile terminal.

38. The RAN node in claim 34, wherein the code is responsive to a forward handover message from the mobile terminal including the temporary RAN identifier to assist in a forward handover operation.

39. The RAN node in claim 34, wherein the code is responsive to a message from another RAN node involved in the connection to determine a RAN address of the other RAN node.

40. In a radio communications system including a core network coupled to a radio access network (RAN) and a plurality of mobile terminals, where a connection may be established between the core network and one of a plurality of mobile terminals through the radio access network, apparatus comprising:

means for associating a temporary RAN identifier with the mobile terminal for the established connection; and

means for using the temporary RAN identifier to assist in the transfer of information through the radio access network.

41. The apparatus in claim 40, wherein the means for using uses the temporary RAN identifier to transfer information between one or more entities in the RAN involved in the established connection.

Sub A 2
42. The method in claim 40, wherein connection is a packet-based connection and the temporary RAN identifier is included in each connection packet, the method further comprising:

means for routing connection packets through the RAN using the temporary
5 RAN identifier incorporated in each connection packet.

43. The method in claim 40, wherein the radio access network includes a first node associated with a first geographical coverage area and a second node associated with a second geographical coverage area, the method further comprising:

means for using the temporary identifier in packets corresponding to the
10 established connection to direct those packets to the first node.

44. The method in claim 43, wherein the mobile terminal moving from the first coverage area to the second coverage area re-establishes the connection using the temporary RAN identifier.

45. The method in claim 44, wherein the temporary RAN identifier
15 includes a node identifier corresponding to the node through which the connection was initially established and a mobile terminal identifier.

46. The method in claim 45, wherein the mobile terminal employs the node identifier corresponding to the node through which the connection was initially established and the mobile terminal identifier when making initial contact in
20 a new geographical coverage area.

47. The method in claim 46, wherein the mobile terminal employs only the mobile terminal identifier after making initial contact in the new geographical coverage area.

48. The method in claim 42, wherein the temporary RAN identifier
25 includes a node identifier corresponding to the node through which the connection

was initially established and a mobile terminal identifier, the method further comprising:

routing packets associated with the connection between the first and second nodes using a shortened temporary RAN identifier that lacks the node identifier.

5 49. The method in claim 43, wherein the first node is an initial RAN node that controls the connection from the perspective of the core network and the second node is another RAN node that currently serves the mobile terminal.

32 50. In a radio communications system including a core network coupled to a radio access network (RAN) including a first Radio Network Controller (RNC) associated with a first area and a second Radio Network Controller (RNC) associated with a second area and a plurality of mobile terminals, where a connection may be established between the core network and one of a plurality of mobile terminals located in the first area through the radio access network using the first RNC, a method comprising:

10 15 the first RNC assigning a temporary RAN identifier and a first RNC mobile terminal identifier (MT ID) to the one mobile terminal for the connection;

sending control or user data between the mobile terminal and the first RNC using the first RNC MT ID;

18 20 if the mobile terminal re-establishes the connection with the second RNC, the first RNC communicates information associated with the connection with the second RNC using the temporary RAN identifier;

the second RNC assigning a second RNC MT ID to the mobile terminal; and sending control or user data between the mobile terminal and the first and second RNC using the second RNC MT ID.

25 51. The method in claim 50, further comprising:

the first RNC sending a page request to the second RNC containing a first RNC identifier and the first RNC MT ID; and

32 the second RNC paging the mobile terminal and the mobile terminal responding to the page using the first RNC identifier and the first RNC MT ID.

52. The method in claim 51, further comprising:

the second RNC forwarding the page response to the first RNC along with
5 the first RNC MT ID and the second RNC MT ID.